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November 14, 1990

Meeting Minutes Transmittal/Approval  
Unit Managers Meeting: 100-HR-1/HR-3/DR-1 Operable Unit  
450 Hills Street, Room 47, Richland Washington

Meeting Held October 17, 1990

From/ Appvl.: James D. Goodenough Date: Nov 15, 1990  
James D. Goodenough, 100-HR-1 Unit Manager, DOE-RL (A5-19)

Appvl.: K. Michael Thompson Date: 12/19/90  
K. Michael Thompson, 100-HR-3 Unit Manager, DOE-RL (A5-19)

Appvl.: Larry Goldstein Date: 1/23/91  
Larry Goldstein, 100-HR-1 Unit Manager, WA Department of Ecology

Appvl.: Charles S. Cline Date: 12/19/90  
Charles S. Cline, 100-HR-3 Unit Manager, WA Department of Ecology

Appvl.: Douglas R. Sherwood Date: 12/19/90  
Douglas R. Sherwood, 100-HR-1, 100-HR-3 Unit Manager, EPA (B5-01)

Meeting Minutes are attached. Minutes are comprised of the following:

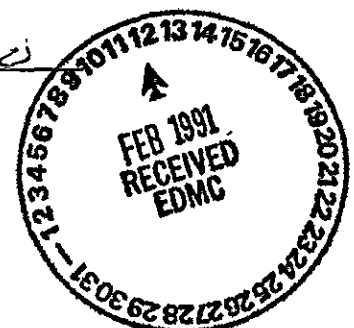
- Attachment #1 - Meeting Summary/Summary of Commitments and Agreements
- Attachment #2 - Attendance List
- Attachment #3 - Commitments/Agreements Status List
- Attachment #4 - Scope of Work
- Attachment #5 - Schedule
- Attachment #6 - Process Effluent Pipeline Integrity Assessment
- Attachment #7 - Septic Tank Sampling and Analysis
- Attachment #8 - Replacement pages for Septic Tank Sampling and Analysis

Prepared by: Tracy Fassett Date: 1/24/91  
SWEC Support Services

Concurrence by: WHC HR-1 RI Coordinator Date: 24 Jan 91

Concurrence by: A.D. King Date: 12/19/90  
WHC HR-3 RI Coordinator

Concurrence by: A.D. King Ben Neukumbel Date: 1/24/91  
WHC DR-1 RI Coordinator



100-HR-1/HR-3/DR-1 Unit Managers Meeting  
450 Hills Street, Room 47  
October 17, 1990

Distribution:

Donna Lacombe, PRC  
Ward Staubitz, USGS  
Diane Clark, DOE (A5-55)  
Doug Fassett SWEC (A4-35)  
Mary Harmon, DOE-HQ (EM-442)  
KaeRae Parnell WHC (H4-18)  
Tom Wintczak, WHC (B2-15)  
Mel Adams, WHC (H4-55)  
Alan Krug, WHC (H4-55)  
Merl Lauterbach, WHC (H4-55)  
Fred Roeck, WHC (H4-55)  
Steve Weiss, WHC (H4-55)  
Roberta Day, WHC (H4-55)  
Tim Veneziano, WHC (B2-35)  
Jeff Ayers, WHC (H4-55)  
"Naik" Naiknimbalaker, WHC (H4-55)

Ronald D. Izatt (A6-95)  
Director, DOE-RL, ERD  
Ronald E. Gerton (A6-80)  
Director, DOE-RL, WMD  
  
Roger D. Freeberg (A6-95)  
Chief, Rstr. Br., DOE-RL/ERD  
Steven H. Wisness  
Tri-Party Agreement, Proj Mgr  
Richard D. Wojtasek (B2-15)  
Prgm. Mgr. WHC

ADMINISTRATIVE RECORD: 100-HR-1, 100-HR-3, 100-DR-1; Care of Susan Wray, WHC (H4-51C)

Please inform Doug Fassett (SWEC) of deletions or additions to the distribution list.

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Attachment #2

Meeting Summary and Summary of Commitments and Agreements  
100-HR-1/HR-3/DR-1 Unit Managers Meeting  
450 Hills Street, Room 47  
October 17, 1990

1. Alan Krug announced that he will be the team leader for the HR aggregate area and the operable unit coordinator for 100-HR-3. Roberta Day will provide support on HR-3. Jeff Ayers will be the operable unit coordinator for HR-1. N.M. (Naik) Naiknimbalker will be the operable unit coordinator for DR-1. Bob Peterson will coordinate hydrology and geology.
2. The status of Action Items was discussed and updated.

Based on the discussion of Action Item #HR1.21 Doug Sherwood (EPA) and Larry Goldstein (Ecology) said the schedule was a required part of the HR work plans but the budget was not essential. The revised work plan will be reviewed by Ecology as it is, *but Ecology will not approve the work plans without the schedules.*

Action Item #HR1.25: The HR and DR work plans will be reviewed by the regulators for incorporation of their comments. Public review is on hold pending DOE-RL review of cost estimates. DOE will provide a schedule for the cost estimates by the next operable unit manager meeting. Action: Jim Goodenough

3. Handouts covering the scope of work (see Attachment #4) and the schedule (see Attachment #5) of 100-HR Aggregate Area activities were distributed by Alan Krug. The numbering on the schedule is consistent with the numbering used in the work plan. \$3.8 million has been allocated for the three operable units. There are two things on which concurrence needs to be reached: 1) Is the scope of work which is outlined acceptable to all parties? 2) In terms of the Tri-Party agreement is it justified to do those things prior to the approval of the work plan? The activities described on the schedule are consistent with the work plan.
4. The procedure of including new information in the work plans was discussed. *Ecology* and EPA agreed with the proposed *preliminary investigation* work schedule if it was consistent with the work plan and is non-intrusive. EPA asked to be informed of any changes as they occur. Alan Krug (WHC) agreed to do so.
5. Alan Krug (WHC) stated that initially one data compilation and evaluation document will be completed for each operable unit and periodic updates will be made to these.
6. A presentation was given by Roberta Day. A handout entitled "Process Effluent Pipeline Integrity Assessment" is included as Attachment #6. The goal is to assess the integrity of the pipelines by inserting a camera into the pipelines. It is to be determined whether the camera

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can detect splits, bad joints, etc. in order to identify sample locations. The pipelines are about 3000 feet long. The expansion boxes are planned to be opened on October 24 through 26. If the expansion boxes are filled with soil, camera access to the pipelines will be blocked. Access at the pipeline termination points or midline excavation will then be considered.

Alan Krug (WHC) stated that the camera inspection technique is a standard procedure. Larry Goldstein (Ecology) approves the first step of opening the expansion boxes, but wants to be informed if additional steps are required to obtain access to the pipeline.

In response to a question from Larry Goldstein, Alan Krug said that even if no breaches were detected with the camera, the work plan required drilling along the pipelines to search for leaks. It has not been determined whether the pipelines will have to be removed.

Larry Goldstein (Ecology) stated that Ecology and EPA must be notified of any excavation. Removing dirt from above the expansion boxes is not necessarily excavation, but Ecology expects appropriate guidelines such as EIIs to be followed and also expects the proposal for this investigation to clearly define the health and safety documentation that will be used.

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7. Alan Krug gave a presentation and distributed a handout entitled "Septic Tank Sampling and Analyses" (see Attachment #7). The handout lists proposed resolutions to Ecology's concerns on septic tank sampling and analyses. If tanks have been decommissioned (opened and filled) soil borings will be made adjacent to the tanks to sample the soil. If no sludge is found in non-decommissioned tanks, then soil borings will be made.

Larry Goldstein said the handout was an acceptable response to Ecology's concerns. However, he had several suggestions for changes in the responses. Response #5 should reference the specific EIIs and the health and safety programs that would be used. Response #6 should take into account new data that is available. A revised procedure is also included in the minutes (See Attachment #8).

8. The following action items were brought up in the General Topics Meeting on October 16, 1990.

**ACTION ITEM #HR1.26:** Provide a schedule to Ecology for the completion of the HR-1, HR-3 and DR-1 work plans. Action: Mike Thompson, Jim Goodenough

**ACTION ITEM #HR1.27:** Determine the next critical date for completing the HR-3 work plan. Action: Mike Thompson

## Attachment #2

Attendance List  
100-HR-1/HR-3/DR-1 Unit Managers Meeting  
October 17, 1990

Name	Organization\Responsibility	Phone
Goodenough, J. D.	DOE-RL	100 HR/DR-1
Thompson, Michael	DOE-RL	HR3 OU
		509-376-7087
		509-376-6421
Cline, Chuck	Ecology	Unit Manager
Cross, Steve	Ecology	CERCLA unit
Goldstein, Larry	Ecology	Unit Manager
Osweiler, Mike	Ecology	Unit Manager
		206-438-7556
		206-459-6675
		206-438-7018
		206-438-7118
Sherwood, Doug	EPA	Unit Manager
		509-376-9529
Lacombe, Donna	PRC	EPA Contractor
		206-624-2692
Fassett, Doug	SWEC	GSSC
King, Joe	SWEC	GSSC
		509-376-9969
		509-376-9969
Ayres, J. M.	WHC	100-HR-1
Day, Roberta	WHC	100-HR-3
Krug, A. D.	WHC	100-HR-3
Naiknimbalkar, "Naik"	WHC	100-DR-1
Peterson, Bob	WHC	100-HR-3
		509-376-3918
		509-376-2499
		509-376-5634
		509-376-8739
		509-376-5858
Staubitz, Ward	USGS	EPA Support
		206-593-6510

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## Attachment #2

Attendance List  
100-HR-1/HR-3/DR-1 Unit Managers Meeting  
October 17, 1990

Name	Organization\Responsibility	Phone
Goodenough, J. D.	DOE-RL 100 HR/DR-1	509-376-7087
Thompson, Michael	DOE-RL HR3 OU	509-376-6421
Cline, Chuck	Ecology Unit Manager	206-438-7556
Cross, Steve	Ecology CERCLA unit	206-459-6675
Goldstein, Larry	Ecology Unit Manager	206-438-7018
Osweiler, Mike	Ecology Unit Manager	206-438-7118
Sherwood, Doug	EPA Unit Manager	509-376-9529
Lacombe, Donna	PRC EPA Contractor	206-624-2692
Fassett, Doug	SWEC GSSC	509-376-9969
King, Joe	SWEC GSSC	509-376-9969
Ayres, J. M.	WHC 100-HR-1	509-376-3918
Day, Roberta	WHC 100-HR-3	509-376-2499
Krug, A. D.	WHC 100-HR-3	509-376-5634
Naiknimbalkar, N.M.	WHC 100-DR-1	509-376-8739
Peterson, Bob	WHC 100-HR-3	509-376-5858
Staubitz, Ward	USGS EPA Support	206-593-6510

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## Attachment #3

**Commitments/Agreements Status List**  
**100-HR-1/HR-3/DR-1 Operable Unit**  
**October 17, 1990**

Item No.	Action	Status
HR1.21:	Delay publishing HR-1 and HR-3 until the meeting on DR-1 is held. October 15 is the target date to provide all three work plans to the public. Action: Jim Goodenough (7/18/90, HR1-UMM)	Closed DOE must address costs before the work plan can be approved. (10/17/90)
HR1.23:	Provide all three work plans to regulators by the August 31 target date or four weeks after the resolution of comments on DR-1 (hammer date). Provide copies of the work plans to the public by October 15 (critical to Ecology). Action: K.M. Thompson and J.D. Goodenough (7/18/90, HR1-UMM)	Closed See Action Item #25.
HR1.24:	Check into reviewing the QA requirements document (QARD) to be issued to EPA and Ecology. Action: J. D. Goodenough (8/16/90, HR1-UMM)	Open (10/17/90)
HR1.25:	The HR and DR work plans will be reviewed by the regulators for incorporation of their comments. Public review is on hold pending DOE-RL review of cost estimates. DOE will provide a schedule for the cost estimates by the next operable unit manager meeting. Action: Jim Goodenough (10/17/90, HR1-UMM)	Open
HR1.26	Provide a schedule to Ecology for the completion of the HR-1, HR-3 and DR-1 work plans. Action: Mike Thompson, Jim Goodenough (10/16/90, GT.UMM)	New
HR1.27	Determine the next critical date for completing the HR-3 work plan. Action: Mike Thompson (10/16/90, GT.UMM)	New

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the approval of the 100-HR-1, 100-HR-2 and 100-HR-3, CMS Operable Unit 1. The schedule of work for FY 1991 has been previously approved. This work is consistent with the intent and objectives of the Transferable Unit Management and Control and is believed to be allowable within the framework of the 100-HR-1, 100-HR-2, 100-HR-3 Agreement and General Order (Agreement). The majority of this work can be conducted prior to the approval of the work plans, as indicated in Sections 7.2.2 and 7.3.2 of the Agreement. The remainder of the work is not explicitly addressed in the Agreement but we feel that it falls within the spirit of the noted sections of the Agreement and as such can be conducted this year.

The attached schedule identifies the activities and approximate timing of work planned for FY 1991. The activities on the schedule are numbered to correlate to activities described in the work plans. The numbers shown in the schedule column labeled "Aux 1" relate to the justification for accomplishing this work prior to work plan approval, as noted in the following:

Aux 1 Justification	Agreement Section
1 Assembly of existing data	7.2.2
2 Survey location of sites	7.3.2
3 Surface radiation	7.3.2
4 Surface geophysical surveys	7.3.2
5 Air sampling	7.3.2
6 Soil gas surveys	7.3.2
7 Biotic surveillance	7.3.2
8 Near surface vadose zone sampling	7.3.2
9 Not explicitly addressed in Agreement	

We have included under "near surface vadose zone sampling" the activities related to conducting the process effluent pipeline integrity assessment (100-HR-1:2c-3 and 100-DR-1:2c-4) and the septic tank sampling (100-HR-1:2c-2 and 100-DR-1:2c-6). Both of these activities are to be conducted in the near surface vadose zone and may involve soil sampling in addition to the primary activity.

We have included (under category 9) surface water and sediment sampling and analysis (100-HR-3:4b and 4c) and ecological field activities and analysis (100-HR-3:8b and 8c) because these are surface or near surface activities. Such activities, while not explicitly allowed prior to work plan approval, are consistent with the spirit of Sections 7.2.2 and 7.3.2 in that they are surface or near surface based and can be accomplished without jeopardizing future sampling activities. Additionally, because these activities must be conducted at specific times during the year, it was deemed advantageous to start them as early as possible.

We have also included (under category 9) several other field activities which utilize existing wells. As part of the geologic investigations (100-HR-3:3b), we plan to conduct spectral gamma logging of approximately 15 monitoring wells in the HR-3 area. As part of the groundwater investigation (100-HR-3:6a), we will be conducting a water level analysis in the wells and augmenting the sitewide well monitoring activity to sample these wells more frequently and for additional constituents.

We have initiated this scope of work as of October 1, 1990 and would like to discuss it with you during the October Unit Managers Meeting. If you have any questions please feel free to contact Mike Thompson (509/376-6421) or Jim Goodenough (509/376-7087).

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# **PROCESS EFFLUENT PIPELINE (PEP) INTEGRITY ASSESSMENT**

**100-HR-1**

**Mobilization:**

- o System Evaluation & Selection
- o Permits & Procedures
- o Basin Well Investigation
- o System Acceptance Testing

**Inspection:**

- o Radiation Detector & Combustible Gas Meter
- o Interior Circumference Inspected
- o Evaluate & Continue

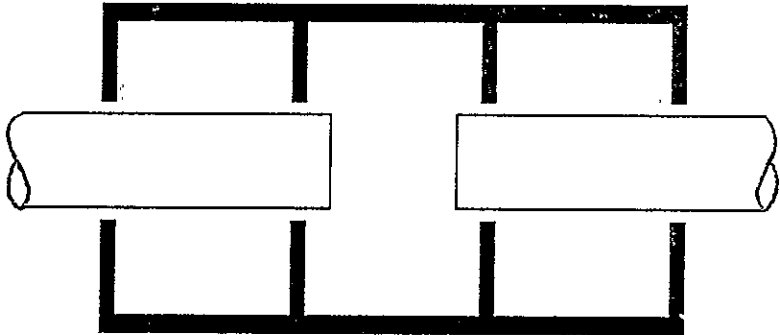
**Status:**

- o Camera System in Procurement Process
- o Placement of Greenhouse
- o Finalization of Procedure & Plan

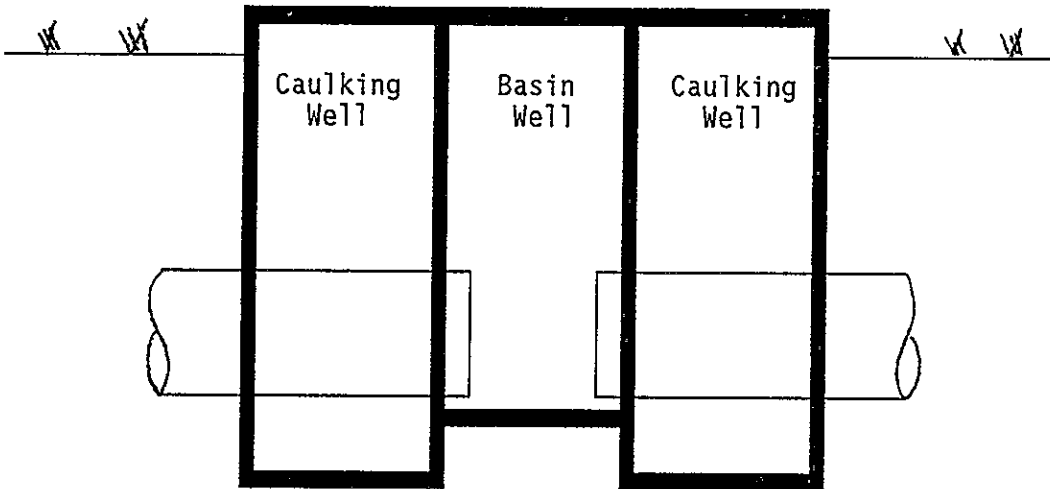
## Options Due to Filled Basin Wells:

- NOT LIKELY  
DUE TO CORROSION* o Remove Soil from Basin Well
- NOT NON-  
INVASIVE* o Mid-Line Access - Excavation
- EXPOSES  
FACILITY* o Access through Reactor Building
- EXCAVATE* o Access through pipeline termination

EXPANSION BOX DETAILS



PLAN DETAIL



PROFILE DETAIL

## Page \_ of \_

DATE 10/16/90

J. Goodenough

UNIT MANAGER

SCHEDULED START DATE

Oct. 24 - 26, 1990

Week of Nov. 5, 1990

during that week.

Nov. 12 - 16, 1990

Nov. 19 - 23, 1990

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UNIT MANAGER

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## Attachment #7

### SEPTIC TANK SAMPLING AND ANALYSIS 100-HR-1 OPERABLE UNIT MANAGER'S MEETING OCTOBER 17, 1990

The DOE/RL, in a September 8, 1989 letter, requested authorization from Ecology to proceed with septic tank sampling and analysis within the 100-HR-1 operable unit. Ecology responded, in a September 26, 1989 letter, with a number of concerns which required resolution prior to the start of septic tank sampling. The following is a summary of those concerns and proposed resolutions:

1. Septic tank locations in question - The septic tanks have been located in aerial and construction photographs and on plant drawings. The 1607-H-2 tank is identifiable in the field. Ground penetrating radar will be used to delineate the tanks prior to excavation. Sufficient information now exists to accurately locate the tanks.
2. Depth to tanks and amount of excavation required is unknown - The original covers and access ports were at grade and readily accessible from the surface. During site decommissioning these covers and access ports were either removed or covered over with fill material. Based upon field observations, the 1607-H-2 tank is approximately 1 - 3 feet below the surface and would probably be excavated by hand shovel. The 1607-H-4 tank (improperly identified as the 1607-H-3 tank in some references) is not readily apparent in the field. It is believed, however, that if the tank was not decommissioned the depth to tank would also be in the 1 - 3 foot range. If the tank was decommissioned, it may have been removed or partially demolished. If it was partially demolished, the depth to tank may be in the 3 - 10 foot range. Should this be the case, a back hoe may be required to access the tank. Once the GPR survey has pinpointed its location, a depth to tank can be determined.
3. Above tank soil characteristics not defined - The above tank soil characteristics should not be of concern at this point in time. The soil above the tanks is fill material applied after the installation of the tanks or after site decommissioning. It will be monitored during the field activity as part of the overall safety program.
4. Surface radiation survey and soil sampling should be done prior to excavation - A Health Physics Technician (HPT) will be on site during the field activity and will monitor for radiation. Soil monitoring will be accomplished as discussed in item 3, above.
5. Need to better define sampling procedures - The original intent was to develop a separate EIL to cover septic tank sampling. An in-house review concluded that the sampling could be accomplished within the framework of existing EILs. It is now believed that the 1607-H-2 and 1607-H-4 septic tanks are dry and there is no need to prepare for liquid samples. A tank inspection will be done to confirm this prior to sampling. A representative sample, in the case of a dry tank, constitutes a full column sample from the tank. The spatial configuration of the samples will be limited by the accessibility provided by the access port.

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6. Septic tank sampling is not within the spirit or letter of the definition of "non-intrusive" - Septic tank sampling is, in our opinion, similar in nature to the "near surface vadose zone sampling" This can commence 2 weeks following the receipt of comments from the lead regulatory agency on the initial draft of the work plan, as stated in Section 7.3.2 of the Hanford Federal Facility Agreement and Consent Order (Agreement). Consequently, we feel that septic tank sampling can be accomplished within the spirit of the Agreement.

The approach to sampling the 100-HR-1 septic tanks reflects the uncertainties associated with the septic tanks and provides opportunities to adjust to unexpected or changed conditions. These steps are:

- Locate the tanks using GPR;
- Determine depth to tank and excavate;
- Open up the tank and determine condition of contents and best sampling method;
- Conduct sampling.

During all of these steps appropriate health, safety and environmental monitoring is conducted to ensure the safety of the worker and the protection of the environment.

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CHRISTINE O. CHICKLEY  
Director



STATE OF WASHINGTON

## DEPARTMENT OF ECOLOGY

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September 26, 1989

Mr. Roger Freeberg, Hanford Project Manager  
U.S. Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

RE: Response to Notification of Work Activities for the  
100-HR-1 and 100-HR-3 Operable Units

Dear Mr. Freeberg:

This letter serves to confirm the phone conversation I had with Mr. John Broderick on September 18, 1989 concerning proposed non-intrusive tasks to be conducted at the subject operable units prior to approval of the RFI/CMS 100-HR-1 and 100-HR-3 Operable Unit Work Plans.

The Department of Ecology approves all activities defined in your September 8, 1989 letter with the exception of Subtask 1f - Septic Tank Sludge Sampling and Analysis. Considerations for Ecology not approving this subtask includes the following:

- 1) An accurate location for the two tanks in question, 1607-H-2 and 1607-H-3, has yet to be determined.
- 2) The depth to the tanks has yet to be determined. There is no indication of how extensive the "limited amount of excavation" cited in your letter will be.
- 3) Characteristics of the soils overlying these tanks have yet to be defined. Representative and accurate unit-specific soil and vadose zone characterization within the operable unit are at issue.
- 4) A surface radiation survey, and soil sampling and analysis, identified in the draft 100-HR-1 Work Plan as Subtasks 3a and 3b, respectively, should be conducted prior to initiating excavation in order to determine the nature and extent of contamination at these units.

Mr. Roger Freeberg  
September 26, 1989  
Page 2

It is noted under paragraph 2.1.4.2 of the draft 100-MR-1 Work Plan that 1607-H-2 Sanitary Septic System "served the 182-H, 183-H, 190-H and several 1700-H office and maintenance service buildings." The contaminants of concern associated with these facilities are documented sufficiently that investigative activities in this area should proceed with caution.

- 5) There is, at best, a generalized description of proposed sampling and analysis procedures found in the last paragraph of page WP-125, and on pages SAP-8,9 of the Field Sampling Plan; more specific information defining how the sludge (or liquids) in the tanks is to be sampled should be provided prior to initiating sampling. For example, what is a representative sample in this case? Does access necessarily preclude options to spatial configuration of the samples? What procedures would be used should liquids be found in the tank(s)?
- 6) This activity as proposed is not within the spirit or letter of the definition of "non-intrusive" as defined under Section 7.3.2 of the Action Plan.

There also appears to be uncertainty as to the media from which data are to be derived from this exercise. For example, on page WP-125, next-to-last paragraph, it is assumed that sludge will be found; on page WP-128, third paragraph, a procedure for handling any liquids found in the tanks (a good contingency note) is found; and on page WP-132, second paragraph, the possibility of no sludge being found is raised. Given that the tanks have not been used in nearly 25 years, this uncertainty is not surprising. Are there methods available to refine the expectations of depth and general physical characteristics of wastes in these tanks?

In summary, it is prudent to obtain more precise information concerning the proximate environment for these tanks before attempting to sample tank sludges. This is particularly true if excavation is to be done with a backhoe, as implied on page

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Mr. Roger Freeberg  
September 26, 1989  
Page 3

WP-125, and specifically mentioned at the September 13 Unit Mangers Meeting. Additional information should also be provided to verify what is most likely to be found in the tanks, and sampling procedures defined accordingly.

Sincerely,



Larry Goldstein  
CERCLA Unit Supervisor

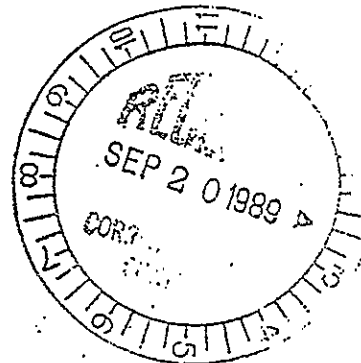
LG:tkr

cc: John Broderick  
Roger Stanley  
Paul Day  
Toby Michelena

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# DISTRIBUTION COVERSHEET

<b>Author</b> R. D. Freeberg, DOE-RL		<b>Addressee</b> P. T. Day, EPA R. F. Stanley, Ecology		<b>Correspondance No.</b>  <b>Incoming:</b> 8903937	
<b>Subject</b> NOTIFICATION OF WORK ACTIVITIES FOR THE 100-HR-1 AND 100-HR-3 OPERABLE UNITS					
Internal Distribution					
Approval	Date	Name	Location	w/att	
		Correspondence Control		X	
		M. R. Adams	L4-92	X	
		L. C. Brown	H4-51	X	
		C. DeFigh-Price	H4-52	X	
		W. T. Dixon	H4-51	X	
		K. R. Fecht	H4-56	X	
		W. L. Johnson	L4-92	X	
		V. W. Hall	H4-17	X	
		K. L. Hoewing	B3-06		
		R. H. Koga	B3-07		
		R. E. Lerch (Assignee)	H4-51	X	
		H. E. McGuire	H4-51	X	
		J. E. Nolan	B3-01	X	
		D. E. Simpson	B3-51	X	
		J. L. Waite	H4-52	X	
		S. A. Wiegman	H4-50	X	
		R. D. Wojtasek	H4-17	X	
		EDMC	H4-51	X	
		SP&I File (DLD)	H4-52	X	



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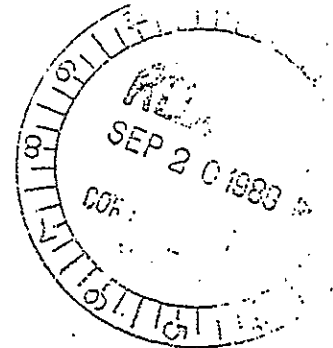
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Department of Energy

Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

89-RB-136

SEP 8 1989



Mr. Paul Day, Project Manager  
U. S. Environmental Protection Agency  
Region 10  
P. O. Box 550, A7-70  
Richland, Washington 99352

Mr. Roger Stanley, Project Manager  
State of Washington  
Department of Ecology  
Mail Stop PV-11  
Olympia, Washington 98504-8711.

Dear Messrs. Day and Stanley:

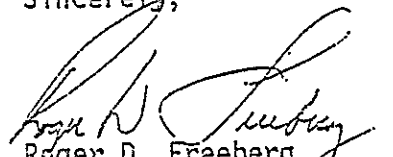
NOTIFICATION OF WORK ACTIVITIES FOR THE 100-HR-1 AND 100-HR-3 OPERABLE UNITS

Per request of the Washington Department of Ecology (WDOE), enclosed is a detailed list of activities which will be initiated prior to approval of the Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study (RFI/CMS) Work Plans for the 100-HR-1 and 100-HR-3 Operable Units. The tasks are all non-intrusive in nature, and many of them are intended to identify drilling targets. Thus, delays in completing these tasks could impact the ultimate completion of the drilling program, once the work plan is approved.

Progress of these work activities will be reported in the monthly Unit Manager's Meeting for each operable unit.

Please call me on (509) 376-7167 or Mr. John P. Sands of my staff on (509) 376-4798, if you have any comments or questions.

Sincerely,

  
Roger D. Freeberg  
Hanford Project Manager

ERD:JPS

Enclosure

cc w/encl:  
L. Goldstein, Ecology  
T. M. Wintczak, WHC  
D. Canty, NPS  
AR File

NON-INTRUSIVE ACTIVITIES  
100-HR-1 Operable Unit RFI/CMS  
August 1989 to April 15, 1990

The following tasks on the 100-HR-1 Operable Unit RFI/CMS will begin between the present time and approximately April 15, 1990, when final approval of the draft Work Plan for the 100-HR-1 Operable Unit is expected. These tasks are all non-intrusive in nature, and many of them are intended to identify drilling targets. Thus, delays in completing these tasks could impact the ultimate completion of the drilling program, once the Work Plan is approved.

Phase I RFI - Initial Operable Unit Characterization

Subphase 1A RFI - Initial Operable Unit Characterization

Procedures: This has not been identified as a separate task in the draft Work Plan. However, in light of comments subsequently received on the WHC EII's it has become obvious that most procedures will need to at least be reviewed, and many of them may need to be supplemented. New procedures will need to be developed for activities (e.g., electromagnetic survey) for which no procedures currently exist.

Task 1 - Source Investigation

This task will consist of six subtasks designed to identify, locate more accurately, and initially characterize, the potential sources of contamination in the 100-HR-1 Operable Unit.

Subtask 1a - Source Data Compilation

This subtask will consist of two activities:

1. A literature search to consist of review of all available data, which will include engineering plans, environmental reports and databases, decommissioning reports, and photographs. Any additional data that becomes available and is deemed pertinent also will be included.
2. Meetings and Operable Unit visits with former and current personnel to help verify contaminant locations, quantities, etc.

Subtask 1b - Topographic Mapping

This task will consist of surveying control points in the 100-HR-1 Operable Unit (the survey will likely include the 100-HR-2 Operable Unit) and photogrammetry to produce a topographic base map.

This task will also consist of land surveying to place panels for the aerial survey, establish precise coordinates of features

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detected in other subtasks (the electromagnetic survey, the ground penetrating radar survey, the process effluent pipeline survey, and the surface radiation survey), and converting the coordinates into NAD-83.

#### Subtask 1c - Electromagnetic Survey

This is a surface geophysical survey which, in the draft Work Plan, is discussed as a "one-time event" to help locate the process effluent pipeline. It is proposed to change the work scope to include using the electromagnetic surveying method to help locate additional buried structures that are reported to have contained significant amounts of metallic rebar, and also to attempt to map contaminant plumes. These additions and changes are based on site information which has become available since the publication of the draft Work Plan. This would mean that the electromagnetic survey would not be restricted to a "one-time event;" it would be run, as necessary, whenever evidence of a subsurface structure became available.

#### Subtask 1d - Ground Penetrating Radar Survey

This is also a surface geophysical survey which, in the draft Work Plan, is discussed as a "one-time event" to help locate the 1607-H-2 and 1607-H-3 septic tanks and their associated tile field, the 116-H-7 sludge burial tank, and the 116-H-4 Pluto Crib. Similar to the electromagnetic survey, it is proposed that the ground penetrating radar survey not be restricted to a "one-time event," but that ground penetrating radar surveys may be used to help locate several other subsurface features as well, as evidence of their existence becomes available.

#### Subtask 1e - Process Effluent Pipeline Integrity Assessment

This subtask will consist of two activities - mobilization and a remote camera inspection. The mobilization activity will consist of gathering information on several available cameras and/or methodologies and recommending the best one(s) to try. The remote camera inspection will consist of running the remote camera(s) inside the pipeline to gather evidence on leaks, ruptures, etc. A limited amount of excavation will be required to provide access to the pipeline.

#### Subtask 1f - Septic Tank Sludge Sampling and Analysis

This subtask will consist of collecting three samples each from the 1607-H-2 and 1607-H-3 septic tanks and sending them to the laboratory for analysis. The purpose of this task is to determine to what degree (if any) the septic tanks are acting as sources of contamination, and thus to determine how much (if any) additional investigation in their vicinity will be required. A limited amount of excavation will be required to provide access to the septic tanks.

Task 3 - Soil Investigation

Subtask 3a - Surface Radiation Survey

This subtask consists of two activities - a background surface radiation survey, and a surface radiation survey of the entire operable unit. The purpose of the background radiation survey is to establish a baseline for determining what level of readings will, or will not be considered contaminated within the operable unit. The purpose of the operable unit survey will then be to scan the entire site and stake and flag for further investigation, any areas which exhibit radioactivity readings above background.

At the present time, a change will be requested in the location of the background radiation survey from that proposed in the draft Work Plan. The location proposed in the Work Plan is somewhere immediately west (generally upwind) of the 100-HR-1 Operable Unit. The problem with this location is that it is also immediately downwind from at least the D & DR reactors and almost certainly will have been contaminated by their emissions. Thus, any survey in this area will almost certainly come under future criticism as not being representative of true background.

Task 4 - Air Investigation

Subtask 4a - Meteorological Data Compilation

This subtask consists of the coordination and compilation of existing climatic data.

Task 5 - Terrestrial Biological Investigation

Subtask 5a - Terrestrial Biological Data Compilation

This subtask involves compilation of Hanford Site terrestrial biological data specific to the 100-HR-1 and similar areas as well as compilation of general terrestrial ecological information.

Subtask 5b - On-Site Terrestrial Biological Survey

This subtask involves quarterly field surveys of the 100-HR-1 Area. Major species will be confirmed.

Task 6 - Data Evaluation

Subtask 6a - Source Data Evaluation

Under this subtask, the results of the ground penetrating radar, electromagnetic survey, septic tank sludge, remote camera inspection of effluent pipelines, and surface radiation surveys

will be compiled to evaluate the current status of waste units in the 100-HR-1 Area.

#### Subtask 6d - Air Data Evaluation

Data compiled from existing meteorological stations will be formatted and analyzed to present numerical descriptions of long-term average climatic conditions, including annual and seasonal variations, and frequencies and magnitudes of extreme weather events.

#### Subtask 6e - Terrestrial Biological Data Evaluation

Major terrestrial species present in and near 100-HR-1, as determined through Subtasks 5a and 5b, will be tabulated. Feeding relationships among species will be presented graphically in the form of a generalized food web. Potential indicator species and ecological indicators also will be presented tabularly.

### Task 7 - Verification of Contaminant - and Site-Specific ARAR's

The formulation of operable unit-specific ARAR's is an ongoing process throughout the RFI/CMS. As 100-HR-1 becomes better characterized during the course of the Phase I RFI, the pertinence of the potential contaminant-and location-specific ARAR's, and possibly other potential ARAR's, becomes more apparent. Once the nature and levels of contamination attributable to 100-HR-1 are sufficiently well defined to the degree that the project staff believes the potential ARAR's to be properly identified, Ecology and EPA will be asked to verify the potential contaminant-and location-specific ARAR's. Project staff will work with the regulatory agencies and, taking operable unit-specific conditions into account, will decide which promulgated environmental standards, requirements, criteria, and limitations are actually applicable or relevant and appropriate to 100-HR-1.

#### Subphase 1B RFI - Additional Operable Unit Characterization

### Task 4 - Baseline Risk Assessment

#### Subtask 4a - Contaminant Identification

The purpose of this subtask is to screen the nature and extent of contamination data, and to identify target contaminants for the risk assessment. Target contaminants will be selected based upon the available environmental occurrence data, intrinsic toxicological properties, and waste volumes.

#### Subtask 4b - Exposure Assessment

The exposure assessment will determine the type and magnitude of potential contaminant exposures to human and environmental receptor

populations based upon preliminary data. This assessment will be performed in accordance with the "Superfund Exposure Assessment Manual," OSWER Directive No. 9285.5-1 (EPA, 1988).

#### Subtask 4c - Toxicity Assessment

The purpose of this task is to assess the risks associated with the release of contaminants, a comparison will be performed between the acceptable levels of contamination and the actual levels identified in the exposure assessment. Contaminant-specific ARAR's, when available, will be used to determine acceptable levels. When ARAR's are not available, acceptable levels will be based on either regulatory advisories or guidance values (to-be-considered values or TBC's) or on environmental concentrations.

#### Subtask 4d - Risk Characterization

The final subtask of the baseline risk assessment involves the characterization of risks whenever the potential for adverse human health or environmental impacts are predicted for a receptor population. A summary of the risks posed by 100-HR-1 Operable Unit will be generated.

#### Task 5 - Phase I RFI Report: Preliminary Summary

This report will consist of a preliminary summary of the results of the operable unit characterization activities conducted to date. Information pertinent to the operable unit conceptual model will be refined as necessary, sources of contaminant releases will be preliminarily identified, the nature and extent of contamination within the environmental media of the operable unit will be described. A preliminary list of contaminant-and location-specific ARAR's will be presented, and the preliminary risks associated with the contaminant releases will be presented.

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NON-INTRUSIVE ACTIVITIES  
100-HR-3 Operable Unit RFI/CMS  
August 1989 to April 15, 1990.

The following tasks on the 100-HR-3 Operable Unit RFI/CMS between the present time and approximately April 15, 1990, when final approval of the draft Work Plan for the 100-HR-3 Operable Unit is expected. These tasks are all non-intrusive in nature. Some of these tasks will only be initiated prior to Work Plan approval, and will be completed at a later date.

Procedures: This has not been identified as a separate task in the draft Work Plan. However, in light of comments subsequently received on the WHC EII's it has become obvious that most procedures will need to at least be reviewed, and many of them may need to be supplemented. New procedures will need to be developed for activities (e.g., aquatic biota sampling) for which no procedures currently exist.

Task 1 - Source Investigation

This task is designed to identify and locate potential sources of contamination contributing to the 100-HR-3 Operable Unit. Areas to receive emphasis are those not currently being investigated under other work plans and include 100-DR-2, 100-DR-3, 100-HR-2, and 100-IU-4.

This task will consist of two activities:

1. A literature search to consist of review of all available data, which will include engineering plans, environmental reports and databases, decommissioning reports, and photographs. Any additional data that becomes available and is deemed pertinent also will be included.
2. Meetings and Operable Unit visits with former and current personnel to help verify contaminant locations, quantities, etc.

Task 2 - Geologic Investigation

Field geologic mapping will be performed to delineate topographic features, distribution and nature of soil units, surficial deposits, occurrence of structural features, etc.

Task 4 - Groundwater Investigation

Subtask 4a - Data Compilation and Project Coordination

Considerable data on geohydrology and groundwater quality/contamination within the 100-HR-3 Operable Unit exist from past and ongoing studies. Existing groundwater data applicable to the

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100-HR-3 Operable Unit will be compiled, integrated, evaluated, and assembled into a computer database.

Investigations of other source operable units within 100-HR-3 (especially those containing liquid waste disposal sites) are expected to progress concurrently. Operations among the several investigations will be coordinated to prevent duplication of effort and to ensure that data use is optimized.

## Task 5 - Surface Water and Sediment Investigation

### Subtask 5a - Relative Data Compilation

Data applicable to the 100-HR-3 Operable Unit concerning Columbia River water sediment will be obtained, inventoried, evaluated, and assembled. Specific data useful or necessary in interpreting data obtained through this investigation may be entered into a computer database to facilitate data comparisons, manipulation, and presentation. Hydrologic data from the U.S. Geological Survey's gauging station located just below Priest Rapids Dam will be included. Information relative to the river stage and discharge in the vicinity of the 100-HR-3 Operable Unit will also be obtained. Data relative to Columbia River water and sediment quality along the 100-HR-3 Operable Unit will be included, as will applicable riverbank spring data. The information gathered will be useful in characterizing the Columbia River environment near the 100-HR-3 Operable Unit, in determining optimum sampling times and locations, and in interpreting data obtained through this investigation.

### Subtask 5b - Radiation Surveys

Radiation surveys will be performed, using portable low-level gamma radiation detectors, along the exposed shoreline within the operable unit, including the island shorelines. In addition, the exposed shoreline within the White Bluffs slough area located near the downstream boundary of the 100-HR-3 Operable Unit will be surveyed. Sediment samples will be collected from those areas observed to have elevated exposure rates ( $>25$  mrem/h) to determine the contributing radionuclide(s) and their concentration(s) in the sediments.

### Subtask 5c - Water and Sediment Sampling

Water and sediment samples will be collected from active riverbank springs or seepage areas. Sampling will be conducted during periods of low river flow to maximize the potential for the seep to be actively flowing. The 100-HR-3 Operable Unit shoreline will be visually inspected for the presence of riverbank springs and near-shore submerged springs. Active springs will be identified on appropriate maps, and the sites will be surveyed, with coordinates and elevation documented. Samples of the seep water will be collected from active flows located above the river level.

Field measurements will be made to determine the seep-water temperature, pH, conductivity, and nitrate concentration. Samples of the spring sediments will be collected in addition to water samples. Near shore river water samples will be taken near spring sampling locations.

Installation of water-level-stage recorder will be completed. Operation will be ongoing throughout the 100-HR-3 RFI/CMS.

#### Task 7 - Biota Investigation

##### Aquatic Biota

Several different organisms/communities will be collected and analyzed for potential contaminants. The organisms/communities include periphyton, macrophytes, benthos, and fish.

Permanent sampling stations will be established to assess, pinpoint, and determine the effects of contaminants emanating from sources in the 100-HR-3 Operable Unit. Sampling of periphyton, rock benthos, and red-sided shiners will be done at five permanent sampling transects, extending from the shoreline toward the middle of the Columbia River.

#### Task 8 - Data Evaluation

Data collected from the source, groundwater, surface water and sediment, radiation, and biota investigations will be compiled and integrated to evaluate the current status of the 100-HR-3 RFI/CMS.

#### Task 9 - Baseline Risk Assessment

##### Subtask 9a - Contaminant Identification

The purpose of this subtask is to screen the nature and extent of contamination data, and to identify target contaminants for the risk assessment. Target contaminants will be selected based upon the available environmental occurrence data, intrinsic toxicological properties, and waste concentrations.

##### Subtask 9b - Exposure Assessment

The exposure assessment will determine the type and magnitude of potential contaminant exposures to human and environmental receptor populations based upon preliminary data. This assessment will be performed in accordance with the "Superfund Exposure Assessment Manual," OSWER Directive No. 9285.5-1 (EPA, 1988).

##### Subtask 9c - Toxicity Assessment

The purpose of this task is to assess the risks associated with the release of contaminants, a comparison will be performed between the acceptable levels of contamination and the actual levels identified in the exposure assessment. Contaminant-specific ARAR's, when available, will be used to determine acceptable levels. When ARAR's are not available, acceptable levels will be based on either regulatory advisories or guidance values (to-be-considered values or TBC's) or on environmental concentrations.

#### Subtask 9d - Risk Characterization

The final subtask of the baseline risk assessment involves the characterization of risks whenever the potential for adverse human health or environmental impacts are predicted for a receptor population. A summary of the risks posed by 100-HR-3 Operable Unit will be generated.

#### Task 10 - Preliminary RCRA Facility Investigation Report

This report will consist of a preliminary summary of the results of the operable unit characterization activities conducted to date. Information pertinent to the operable unit conceptual model will be refined as necessary, sources of contaminant releases will be preliminarily identified, the nature and extent of contamination within the environmental media of the operable unit will be described. A preliminary list of contaminant-and location-specific ARAR's will be presented, and the preliminary risks associated with the contaminant releases will be presented.

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**SEPTIC TANK SAMPLING AND ANALYSIS  
100-HR-1 OPERABLE UNIT MANAGER'S MEETING  
OCTOBER 17, 1990**

The DOE/RL, in a September 8, 1989 letter, requested authorization from Ecology to proceed with septic tank sampling and analysis within the 100-HR-1 operable unit. Ecology responded, in a September 26, 1989 letter, with a number of concerns which required resolution prior to the start of septic tank sampling. The following is a summary of those concerns and proposed resolutions:

1. Septic tank locations in question - The septic tanks have been located in aerial and construction photographs and on plant drawings. The 1607-H-2 tank is identifiable in the field. Ground penetrating radar will be used to delineate the tanks prior to excavation. Sufficient information now exists to accurately locate the tanks.
2. Depth to tanks and amount of excavation required is unknown - The original covers and access ports were at grade and readily accessible from the surface. During site decommissioning these covers and access ports were either removed or covered over with fill material. Based upon field observations, the 1607-H-2 tank is approximately 1 - 3 feet below the surface and would probably be excavated by hand shovel. The 1607-H-4 tank (improperly identified as the 1607-H-3 tank in some references) is not readily apparent in the field. It is believed, however, that if the tank was not decommissioned the depth to tank would also be in the 1 - 3 foot range. If the tank was decommissioned, it may have been removed or partially demolished. If it was partially demolished, the depth to tank may be in the 3 - 10 foot range. Should this be the case, a back hoe may be required to access the tank and Ecology/EPA will be contacted prior to doing any intrusive work. Once the GPR survey has pinpointed its location, a depth to tank can be determined.
3. Above tank soil characteristics not defined - The above tank soil characteristics should not be of concern at this point in time. The soil above the tanks is fill material applied after the installation of the tanks or after site decommissioning. It will be monitored during the field activity as part of the overall safety program.
4. Surface radiation survey and soil sampling should be done prior to excavation - A Health Physics Technician (HPT) will be on site during the field activity and will monitor for radiation. Soil monitoring will be accomplished as discussed in item 3, above.
5. Need to better define sampling procedures - The original intent was to develop a separate EII to cover septic tank sampling. An in-house review concluded that the sampling could be accomplished within the framework of EII 5.2, Soil and Sediment Sampling and as described in the Hazardous Waste Operations Permit (HWOP) required by EII 2.1. It is now believed that the 1607-H-2 and 1607-H-4 septic tanks are dry and there is no need to prepare for liquid samples. A tank inspection will be done to confirm this prior to sampling. A representative sample, in the case of a dry tank, constitutes a full column sample from the tank. The

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spatial configuration of the samples will be limited by the accessibility provided by the access port.

6. Septic tank sampling is not within the spirit or letter of the definition of "non-intrusive" - Septic tank sampling is, in our opinion, similar in nature to the "near surface vadose zone sampling" This can commence 2 weeks following the receipt of comments from the lead regulatory agency on the initial draft of the work plan, as stated in Section 7.3.2 of the Hanford Federal Facility Agreement and Consent Order (Agreement). Consequently, we feel that septic tank sampling can be accomplished within the spirit of the Agreement.

The approach to sampling the 100-HR-1 septic tanks reflects the uncertainties associated with the septic tanks and provides opportunities to adjust to unexpected or changed conditions. These steps are:

- Locate the tanks using GPR;
- Determine depth to tank and excavate;
- Open up the tank and determine condition of contents and best sampling method;
- Conduct sampling.

During all of these steps appropriate health, safety and environmental monitoring is conducted to ensure the safety of the worker and the protection of the environment. If intrusive activities appear to be needed, these will be discussed with Ecology/EPA prior to implementation.

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100-HR-1/HR-3/DR-1 Unit Managers Meeting  
450 Hills Street, Room 47  
October 17, 1990

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ADMINISTRATIVE RECORD: 100-HR-1, 100-HR-3, 100-DR-1; Care of Susan  
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